

**REMARKS**

Claims 1-3, 5-19 and 21-32 are pending in the present Application.

I. Claims 1, 8-9, 12, 17, 24-25 and 28 stand rejected under 35 USC 103(a) as obvious over the combination of Fujisawa et al (U.S. 5,997,136) Hitoshi (JP 362288045A) and Kubota Corp (JP 04107129A).

Independent claims 1 and 17 have been amended to add the limitations from claims 4 and 20, respectively. Claims 4 and 20 are not rejected in the rejections above, therefore these rejections are respectfully traversed.

II. Claims 2-7, 10-11, 13-16, 26-27 and 29-32 stand rejected under 35 USC 103(a) as obvious over the combination of Fujisawa et al (US 5,997,136) in view of Hitoshi (JP 62288045A) and Kubota Corp. (JP 04107129A) as applied to claims 1 and 17 and further in view of Goto et al. (US 6,729,718), Konishi et al. (JP 02002256187A) and Konica (JP 2004202706A).

In response, applicants respectfully note the following points:

1. Claim 20 is not rejected above or anywhere in the discussion. Therefore, the combination of claims so that 17 = 17+20 is allowable according to the Office Action.
2. This rejection is a combination of six references. This is a very high number of references to combine for a USPTO rejection, and also for one skilled in the art to logically link together to establish a *prima facie* case of obviousness for the combination as required by 35 USC 103(a) (see discussion at MPEP 706.02(j)). Therefore, it is doubtful that one skilled in the art would have the required motivation to combine six references to suggest the present claims and also the required reasonable expectation of success from such an attenuated string of so many references. (MPEP 706.02(j)).

3. With respect to "average surface roughness of an inner surface of the ink supply tube is 200 to 2,000 nm" in claim 1, the USPTO respectfully alleges that a skilled artisan would realize that there is a correlation between the roughness and the flow velocity of the ink within the tube, and thus he would select the optimum inner surface roughness as simply a matter of mechanical design expedient for an engineer.

However, applicants respectfully note that the range "200 to 2,000 nm" of the average surface roughness according to the invention is not set based on the flow velocity of the ink. It is set in order to prevent foreign matter, e.g., air bubbles, impurities or the like, from attaching onto the inner surface of the tube. It is also respectfully asserted that the deposition tendency of foreign matter onto the inner surface of the tube is not disclosed or suggested in any of the cited references, and it is also not a well-known matter for a skilled artisan. These two points are supported in Table 2 at page 35 of the specification (see pages 33-35 for explanation of the symbols used).

In Table 2, the superiority of the specifically claimed range "200 to 2,000 nm" of the average surface roughness is understood by comparisons among the data of ink jetting methods Nos. 5, 6 and to comparative method 17. However, it is also the case that even though each of the comparative ink jetting methods Nos. 9 and 10 has an average surface roughness of 200 to 2,000 nm, the deposition tendency of foreign matter thereof is no good in comparative methods 9 and 10. Therefore, it is not merely a simple matter of design expediency to select 200 to 2,000 nm because Table 2 shows that it does not always work depending on the species of pigment ink used.

Therefore, further limitations regarding the ink, i.e., "the ink contains a colorant, water and a water-soluble organic solvent, *the ink having a dissolved oxygen concentration of 4 ppm or below*", which are the contents of present claims 4 and 20, have been amended into the present claims 1 and 17, respectively. Therefore, the specifically claimed limitations do demonstrate criticality because if the limitations are not used the device does not work as claimed as Table 2 clearly shows.

Additionally, under 35 USC 103(a) all of the limitations of the claims must be taught or suggested by the cited references or official notice has to be taken (see MPEP 2144.03). At

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page 5, the USPTO does not cite a reference or take official notice (see MPEP 2144.03) to teach the limitations of "the ink contains a colorant, water and a water-soluble organic solvent, the ink having a dissolved oxygen concentration of 4 ppm or below", as is required but instead relies on a statement of the Examiner's own personal knowledge wherein the Examiner respectfully states that:

"It is noted that selecting "a contact angle of the ink to the inner surface of the ink supply tube, i.e., is to 10 degrees to 60 degrees below, and the ink having a dissolved oxygen concentration of 2 ppm or below and/or 0.01 to 1 ppm or below and/or 4 ppm or below" appears to be a design expedient for an engineer depending upon the particular environment and applications in which the ink jet fluid supply is to be used since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art..."

therefore, in summary five very important points show that obviousness is not established as required by MPEP 706.02(j) and MPEP 2144.03:

1. The quote above states that "it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art." However, in this case, the "general conditions of the claim" namely "the ink contains a colorant, water and a water-soluble organic solvent, the ink having a dissolved oxygen concentration" are not discussed at all by the rejections, so this optimum range argument does not apply.
2. All of the limitations of the claims are not taught or suggested by the cited references as required (see MPEP 706.02(j)), namely the limitations: "the ink contains a colorant, water and a water-soluble organic solvent, the ink having a dissolved oxygen concentration of 4 ppm or below" are not taught or suggested by the cited references but instead the Examiner uses his own personal knowledge to impermissibly "fill in the gaps" to cover a major

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limitation, see MPEP 2144.03 (E) stating:

"Any rejection based on assertions that a fact is well-known or is common knowledge in the art without documentary evidence to support the examiner's conclusion should be judiciously applied. Furthermore, as noted by the court in Ahlert, any facts so noticed should be of notorious character and serve only to "*fill in the gaps*" in an *insubstantial manner* which might exist in the evidentiary showing made by the examiner to support a particular ground for rejection. *It is never appropriate to rely solely on common knowledge in the art without evidentiary support in the record as the principal evidence upon which a rejection was based.* See Zurko, 258 F.3d at 1386, 59 USPQ2d at 1697; Ahlert, 424 F.2d at 1092, 165 USPQ 421."

3. Remembering that Table 2 discussed above has shown why the specifically claimed limitations are important and are not common knowledge, the applicants seasonably challenge the Examiner's personal knowledge statement and require that a reference be cited. See MPEP 2144.03 stating:

**C. If Applicant Challenges a Factual Assertion as Not Properly Officially Noticed or not Properly Based Upon Common Knowledge, the Examiner Must Support the Finding With Adequate Evidence**

To adequately traverse such a finding, an applicant must specifically point out the supposed errors in the examiner's action, which would include stating why the noticed fact is not considered to be common knowledge or well-known in the art. See 37 CFR 1.111(b). See also Chevenard, 139 F.2d at 713, 60 USPQ at 241 ("[I]n the absence of any demand by appellant for the examiner to produce authority for his statement, we will not consider this contention."). A general allegation that the claims define a patentable invention without any reference to the examiner's assertion of official notice would be inadequate. If applicant adequately traverses the examiner's assertion of official notice, the examiner must provide documentary evidence in the next Office action if the rejection is to be maintained. See 37 CFR 1.104(c)(2). See also Zurko, 258 F.3d at 1386, 59 USPQ2d at 1697 ("[T]he Board [or examiner] must point to some concrete evidence in the record in support of these findings" to satisfy the substantial evidence test). If the examiner is relying on personal knowledge to support the finding of what is known in the art, the examiner must provide an affidavit or declaration setting forth specific factual statements and explanation to support the finding. See 37 CFR 1.104(d)(2).

4. Claim 20 was not rejected in the Office Action.

5. A combination of 6 references is difficult to logically justify or link together in general to meet the requirements for a *prima facie* case of obviousness (see MPEP 706.02(j)), and further in this case, the required reasoning is also not present in any event, i.e., all of the limitations of the claims are not taught or suggested, i.e., no "the ink contains a colorant, water and a water-soluble organic solvent, *the ink having a dissolved oxygen concentration of 4 ppm or below*"; and also no motivation to combine and no reasonable expectation of success are discussed in the rejections as required (MPEP 706.02(j)).

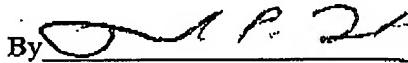
Therefore, for at least the five reasons above, the rejections are respectfully asserted to be traversed. Claims 1 and 17 are therefore allowable, and all of the dependent claims are therefore also allowable.

III. Conclusion.

It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable. Accordingly, reconsideration and allowance are respectfully requested. Please telephone the undersigned for any reason. Applicants seek to cooperate with the Examiner by telephone or otherwise.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130.

Respectfully submitted,

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